REMARKS

Claims 1, 3-34 are pending in the present application. Claims 1, 3, 4, 7, 8, 13-16, 18, 19, 24-26 and 33-34 were amended in the "Response to Final Office Action," filed January 27, 2003; however these amendments were not entered according to the Advisory Action mailed February 14, 2003. Claims 1, 13, 24, 33 and 34 have been further amended in this submittal. Claims 3, 4, 7, 8, 14-16, 18, 19, and 25-26 remain in the amended form as filed on January 27, 2003. Claims 35-43 have been cancelled. Support for the amended claims can be found generally throughout the specification, and in particular on pages 9-10 and 20-27, and in the original claims. No new subject matter has been added by the amendments.

Applicants have amended the specification to denote the type of molecular weight represented by molecular weight values given for the poly(ethylene oxide) resins. No new matter has been added by this amendment. Based on the following remarks, Applicants respectfully request allowance of the pending claims.

Rejection of Claims 1, 3-34 under 35 USC § 112, second paragraph

The Examiner rejected Claims 1 and 3-34 under 35 U.S.C. §112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner asserted that the recited "types of monomers" in Claims 1, 3-5, 7, 8, 13-16, 18, 19 and 24-26 constituted indefinite subject matter. The Examiner found that it was not apparent how the term "type(s)" when appended to an otherwise definite expression, further limits the claims at issue. Applicants have amended the claims at issue to remove the phase "types of," rendering these claims definite. Applicants note that Claim 5 did not recite the phrase at issue. Therefore, in view of the above amendments, Applicants respectfully request the withdrawal of this rejection.

The Examiner also found that the recited "molecular weights between about 100,000 g/mol to about 8,000,000 g/mol" in Claims 33 and 34 constituted indefinite subject, since it was not clear as to the exact type of molecular weight intended. Applicants have amended these claims to recite the corresponding type of molecular weight. Applicants have also amended these

claims to clarify the recited range of molecular weights. Therefore, Applicants respectfully request the withdrawal of this rejection.

Rejection of Claims 1, 3-32 under 35 USC § 103(a)

The Examiner rejected Claims 1 and 3-32 under 35 U.S.C. §103(a), as unpatentable over U.S. Patent 4,140,668 to Sumi *et al.* (hereinafter Sumi) or U.S. Patent 5,430,090 to Miyamoto *et al.* (hereinafter Miyamoto), in combination with U.S. Patent 3,891,584 to Ray-Chaudhuri *et al.* (hereinafter Ray-Chaudhuri).

The Examiner asserted that Sumi and Miyamoto disclose hot melt adhesive compositions, suitable for paper making such as bookbinding, wherein said compositions are defined basically as containing a polyvinyl alcohol-governed melt mixture. The Examiner found that both the Sumi and the Miyamoto disclosures differ basically from the claimed invention in the non-express guidelines to incorporate, into the hot melt adhesive blend compositions, a graft copolymer of poly(ethylene oxide), as claimed in Applicants' invention.

The Examiner submitted that Ray-Chaudhuri teaches hot melt adhesive compositions, useful in bookbinding, that are defined basically as containing a graft copolymer of a poly(ethylene oxide)-governed melt mixture. The Examiner concluded it would have been obvious to the skilled artisan to add the graft copolymer of poly(ethylene oxide) of Ray-Chaudhuri to the polyvinyl alcohol-governed melt mixture of Sumi or Miyamoto, with a reasonable expectation of obtaining a cumulative, additive effect. Applicants respectfully traverse this rejection for the following reasons.

To establish a prima facie case of obviousness, the Examiner must establish that a prior art reference, or combined references, teach or suggest all the claim limitations of Applicants' invention. MPEP §§ 2142-2143. Also, the teaching or suggestion to make the claimed combination, and the reasonable expectation of success, must be found in the prior art, and not based on Applicant's disclosure. See MPEP § 2142; *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Applicants respectfully submit that neither the Sumi reference in combination with the Ray-Chaudhuri reference, nor the Miyamoto reference in combination with the Ray-Chaudhuri reference teach or suggest currently pending Claims 1, and 3-32.

Applicants' pending claims are directed to compositions comprising blends of poly(vinyl alcohol) and a graft copolymer of poly(ethylene oxide), wherein the graft copolymer of poly(ethylene oxide) comprises a poly(ethylene oxide) backbone main chain, and one or more chains derived from one or more monomers that differ chemically or configurationally from the poly(ethylene oxide) backbone, and wherein the one or more chains are bonded at one or more points along the poly(ethylene oxide) backbone. The graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights of about 100,000 g/mol to about 8,000,000 g/mol. Applicants respectfully submit that neither Ray-Chaudhuri, Sumi, Miyamoto, nor the combination of Ray-Chaudhuri with Sumi or Miyamoto, teach or suggest the compositions of Applicants' pending claims.

Ray-Chaudhuri in combination with the Sumi or the Miyamoto, does not teach or suggest graft copolymers of poly(ethylene oxide) prepared from poly(ethylene oxide) resins with number average molecular weights of about 100,000 g/mol to about 8,000,000 g/mol. Ray-Chaudhuri teaches polyalkylene oxide polymers with low molecular weights of about 3,000 to 20,000 (see Abstract). Sumi or Miyamoto do not teach or suggest graft copolymers of poly(ethylene oxide) in accordance with Applicants' claimed invention.

Therefore, for at least the reasons given above, Applicants respectfully submit that Claims 1, and 3-32 are allowable over the art of record. Applicants submit that Ray-Chaudhuri in combination with Sumi or Miyamoto, does not teach or suggest currently pending Claims 1, 13, and 24. Since the remaining claims depend directly or indirectly from the above respective claims, Applicants respectfully submit that Ray-Chaudhuri, in combination with Sumi or Miyamoto, does not teach or suggest these claims. Therefore, Applicants respectfully request the withdrawal of this rejection.

Marked-up Version to Show Changes Made to Specification

Pursuant to 37 CFR §1.121(b), the following replacement paragraphs and sections show all the changes made by the foregoing amendment relative to the previous version of the specification, with deleted text shown in [brackets] and added text shown in underlining:

The paragraph beginning on page 9, line 18, and ending on page 10, line 3, was replaced with the following:

Modification of PEO resins with starting molecular weights of between about 100,000 g/mol to about 8,000,000 g/mol (number-average molecular weight) allows the modified PEO resins to be drawn into films with thicknesses of less than 0.5 mil. Modification of PEO resins with starting molecular weights of between about 300,000 g/mol to about 8,000,000 g/mol is preferred for filmmaking. Films thermally processed from the modified PEO compositions have better softness and greater clarity than films processed from unmodified low molecular weight PEO having a reported molecular weight of 200,000 g/mol or less. Thermal processing of films from high molecular weight PEO modified in accordance with this invention also results in films with improved mechanical properties over films similarly processed from unmodified low molecular weight PEO.

Marked up version of re-written claims

Pursuant to 37 CFR §1.121(c)(1)(ii), another version of the rewritten claims, marked up to show all the changes relative to the previous version of the claims, is now set forth, with deleted text shown in [brackets] and added text shown in underlining:

1. (Fourth Amendment) A composition comprising a [compatible] blend of a poly(vinyl alcohol) and a graft copolymer of poly(ethylene oxide), the blend having improved melt processability and mechanical properties without the addition of plasticizers; and

wherein the graft copolymer of poly(ethylene oxide) comprises a poly(ethylene oxide) backbone main chain, and one or more chains derived from one or more [types of] monomers that differ chemically or configurationally from the poly(ethylene oxide) backbone, and wherein the one or more chains are bonded at one or more points along the poly(ethylene oxide) backbone, and

wherein the graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights of about 100,000 g/mol to about 8,000,000 g/mol.

3. (Thrice Amended) The composition of Claim 1, wherein the one or more [types of] monomers comprise one or more vinyl monomers.

4. (Thrice Amended) The composition of Claim 1, wherein the one or more [types of] monomers comprise one or more polar vinyl monomers.

7. (Thrice Amended) The composition of Claim 1, wherein the one or more [types of] monomers comprise one or more hydroxyalkyl esters of methacrylic acid.

8. (Thrice Amended) The composition of Claim 1, wherein the one or more [types of] monomers comprise 2-hydroxyethyl methacrylate.

13. (Fourth Amendment) A thermoplastic, water-soluble composition comprising a [compatible] blend of a poly(vinyl alcohol) and a graft copolymer of poly(ethylene oxide);

wherein the graft copolymer of poly(ethylene oxide) comprises a poly(ethylene oxide) backbone main chain, and one or more chains derived from one or more [types of] monomers that differ chemically or configurationally from the poly(ethylene oxide) backbone, and wherein the one or more chains are bonded at one or more points along the poly(ethylene oxide) backbone, and

wherein the graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights of about 100,000 g/mol to about 8,000,000 g/mol.

14. (Thrice Amended) The composition of Claim 13, wherein the one or more [types of] monomers comprise one or more vinyl monomers.

15. (Thrice Amended) The composition of Claim 13, wherein the one or more [types of] monomers comprise one or more polar vinyl monomers.

16. (Thrice Amended) The composition of Claim 13, wherein the one or more [types of] monomers comprise one or more polar vinyl monomers selected from the group consisting of 2-hydroxyethyl methacrylate, poly(ethylene glycol) methacrylates, poly(ethylene glycol) ethyl ether methacrylates, poly(ethylene glycol) acrylates, poly(ethylene glycol) ethyl ether acrylate, poly(ethylene glycol) methacrylates with terminal hydroxyl groups, acrylic acid, maleic anhydride, itaconic acid, sodium acrylate, 3-hydroxypropyl methacrylate, acrylamide, glycidyl methacrylate, 2-bromoethyl acrylate, carboxyethyl acrylate, methacrylic acid, 2-chloroacrylonitrile, 4-chlorophenyl acrylate, 2-cyanoethyl acrylate, glycidyl acrylate, 4-nitrophenyl acrylate, pentabromophenyl acrylate, poly(propylene glycol) methacrylate, poly(propylene glycol) acrylate, 2-propene-1-sulfonic acid and its sodium salt, sulfo ethyl methacrylate, 3-sulfopropyl methacrylate, and 3-sulfopropyl acrylate.

18. (Thrice Amended) The composition of Claim 13, wherein the one or more [types of] monomers comprise one or more hydroxyalkyl esters of methacrylic acid.

19. (Thrice Amended) The composition of Claim 13, wherein the one or more [types of] monomers comprise 2-hydroxyethyl methacrylate.

24. (Fourth Amendment) A thermoplastic, water-soluble composition consisting essentially of a [compatible] blend of a poly(vinyl alcohol) and a graft copolymer of poly(ethylene oxide);

wherein the graft copolymer of poly(ethylene oxide) comprises a poly(ethylene oxide) backbone main chain, and one or more chains derived from one or more [types of] monomers that differ chemically or configurationally from the poly(ethylene oxide) backbone, and wherein the one or more chains are bonded at one or more points along the poly(ethylene oxide) backbone, and

wherein the graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights of about 100,000 g/mol to about 8,000,000 g/mol.

25. (Thrice Amended) The composition of Claim 24, wherein the one or more [types of] monomers comprise one or more polar vinyl monomers.

26. (Thrice Amended) The composition of Claim 24, wherein the one or more [types of] monomers comprise one or more hydroxyalkyl esters of methacrylic acid.

33. (Twice Amended) The composition of Claim 1, wherein the graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights [between] of about [100,000] 300,000 g/mol to about 8,000,000 g/mol.

34. (Twice Amended) The film of Claim 27, wherein the graft copolymer of poly(ethylene oxide) is prepared from poly(ethylene oxide) resins with number average molecular weights [between] of about [100,000] 300,000 g/mol to about 8,000,000 g/mol.

Claims 35-43 were cancelled.

CONCLUSION

The foregoing is submitted with a Request For Continued Examination, and is a complete response to the Final Office Action mailed November 27, 2002. Claims 1 and 3-34 are pending in the application. Claims 35-43 were cancelled. Applicants respectfully submit that Claims 1 and 3-34 are patentable. Early and favorable consideration is solicited.

A check in the amount of $750.00 is enclosed, the fee for the Request for Continued Examination. Also enclosed is a check for $930.00, the fee for a three-month extension of time. No additional fees are believed due; however, the Commissioner is hereby authorized to charge any deficiencies which may be required, or credit any over payment, to Deposit Account No. 11-0855.

If the Examiner believes that there are other issues that can be resolved by a telephone interview, or that there are any informalities that remain in the application, which may be corrected by the Examiner's amendment, a telephone call to the undersigned attorney at (404) 815-6500 is respectfully solicited.

Respectfully submitted,

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